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Rainer Muller

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EXAMINER

GUGLIOTTA, NICOLE T

ART UNIT

PAPER NUMBER

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/596,981	Applicant(s) MULLER ET AL.	
	Examiner NICOLE T. GUGLIOTTA	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 May 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 23 - 30 & 33 - 46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 22 - 30 & 33 - 46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/18/2009</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 18, 2009 has been entered.

Examiner's Note

Examiner acknowledges the amendments to claims 23 – 26, 28 - 30, 34, 36, 37, 40 & 42. Claims 23 – 30 & 33 - 46 are currently pending.

Claim Objections

1. Claims 22, 29 & 40 are objected to because of the following informalities:

"aramide" should be spelled "aramid". Appropriate correction is required.

2. Claim 33 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 33 fails to further limit claim 28, which it is dependent upon.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 36, 38, 44 & 45 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- a. First, claim 36 recites the limitation "carbon fiber reinforced plastics insulation" in the interior panel. There is insufficient antecedent basis for this limitation in the claim.
- b. Second, it is unclear what is intended by the limitation "right to the circumference of the insulation" in claim 36. Examiner requests clarification.
- c. In regard to claims 38 & 45, the claim speaks to a hole-like leadthrough (in the insulation package) aligned with a threaded drill hole. It is unclear where (i.e. which layer of the panel) the threaded drill hole is located for it to be aligned. (Examiner notes claims 38 and 45 are not dependent on claims 37 and 44, respectively, which do disclose the location of a "threaded drill hole").
- d. In regard to claim 44, the first part of this claim stipulates the bottom-supported cover layer must be glass fiber reinforced plastics. However, the last part of the claim stipulates the layer is carbon fiber reinforced plastics or glass fiber reinforced plastics. Thus the scope of the claim starts narrow, then broadens in regard to the material of the bottom cover layer. Therefore,

Examiner takes the position the claim language is indefinite in regard to the material of the bottom cover layer.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 40 – 41 are rejected under 35 U.S.C. 102(b) as being anticipated by Chee et al. (WO 85/03032).

In regard to claims 40 and 41, Chee et al. disclose a panel of layers bonded together (Pg 8, Lines 23 – 27) in the following order: Celion (graphite), Kevlar, Core, Celion, Celion. Celion is graphite reinforced fiber (corresponds to Applicants' "carbon reinforced fiber" plastics layer) (Fig. 4, Panel No. 23 & Fig. 6 panels A1 and A2). The Kevlar and Celion layers directly in contact with the honeycomb core of Chee et al. correspond to Applicant's top-supported cover layer and bottom-supported cover layers. The core may be a honeycomb configuration (Figure 2 & Page 15, Lines 1 – 17). The honeycomb cores were made of aramid fiber (Page 16, Lines 1 – 2).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 23, 24, 29 & 34 – 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Humphries et al. (EP 0 279 620 A2), in view of Fischer et al. (U.S. Patent No. 4,759,964).

In regard to claims 23 and 36, Humphries et al. disclose an aircraft shell module in which the starboard panel and a port panel contains a dampening sheet of vinyl 80 separating honeycomb cores 82 on each side. Exterior to each honeycomb core 82 is a structural face 84. The panel is lightweight and suppresses transmission of sound while still maintaining structural integrity (Col. 4, Lines 6 - 11). Humphries disclose at least 2 honeycomb body layers in Figure 10 of their disclosure. Humphries does not disclose the honeycomb body to be made of paper or an aramide (aramid) or a burn-through-proof foil such as CFK or GFK positioned on each face of the honeycomb body.

Fischer et al. disclose a cellular structure covered on each side by a layer 3 of fibrous material. On the outer surface the structural panel is also provided with a layer 1 of fibrous material (Col. 2, Line 58 - Col. 3, Line 6). The fibers may be formed from any reinforcing material, e.g. glass fibres, impregnated carbon fibres, and the like. The structural panel may be installed between any desirable clamping devices (Col. 4, Lines 25 - 28). The resin-rich, structural fibrous layers are not affected by flames (Col. 3, Lines 52 – 55). Fischer et al. disclose it is well known in the prior art for carbon fibre reinforced sandwich panels are intended for use in aero planes in order to keep as low as

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possible the operating deadweight and, as a consequence thereof, the fuel costs (Col. 1, Lines 24 - 29). Aluminum foil 2 serves as an insulation layer for the resin-rich interior of the floor panel (Col. 3, Lines 35 - 37). This layer 2 is preferably gas-tight; thus hot gases are prevented from passing through the layer and then burning the layer situated therebelow. This layer preferably also has good thermal conductivity, like aluminum, and thereby dissipated the heat (Col. 3, Lines 26 - 30). Fischer et al. further note that other foils, such as sheet steel foil, may be used instead of aluminum foil (Col. 3, Lines 56 - 59). According to the FAA standards, stainless steel foils are "fireproof".

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that CFK (carbon reinforced fiber) cover layers with a fireproof foil (i.e. stainless steel) are adhered to honeycomb structures for use in airplanes due to their light weight and ability to dissipate heat, such as in the event of a fire, as disclosed by Fischer et al.

Fischer et al. disclose in their figure the aluminum foil later 2, to be flat and the CFK layer to be flat. Therefore, when in a laminate, as suggested by Fischer et al., it would be obvious to one of ordinary skill in the art at the time of the invention that the foil would conform to the outer surface of the CFK layer and be positioned between the two honeycomb body layers when more than one honeycomb layer is present (see discussion of Humphries et al. above).

In regard to claim 24, Humphries et al. are silent in regard the use of adhesive between honeycomb bodies or the use of a foil. Fischer et al. disclose the first CFK

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layer is joined to a second CFK layer (between honeycombs) by a phenol resin, and said second layer is joined to a layer situated therebelow by epoxy resin (Col. 4, Lines 61 – 64). It would have been obvious to one skilled in the art at the time of the invention that adhesives, such as phenol resin and/or epoxy resin, would be used to attach the various layers of the honeycomb panel to one another, as disclosed by Fischer et al.

In regard to claim 28, it would have been obvious to one skilled in the art that stacking the honeycomb structures creates a plurality of CFK layers and to duplicate parts in order to form a multilayer structure, as shown by the Heitkamp in the arguments made of claims 24 – 27.

In regard to claim 29, Humphries et al. is silent in regard to the material for a honeycomb material. Fischer et al. disclose a core preferably formed from impregnated, paper-like material, e.g. Aramid fibrous paper are advantageously flat (Col. 2, Lines 21 - 37). It would have been obvious to one skilled in the art at the time of the invention that aramid fibrous paper is commonly known in the art for the manufacturing of honeycomb paneling used in aircraft, as shown by Fischer et al.

In regard to claim 34 and 35, Humphries et al. is silent in regard to an adhesive. Fischer et al. disclose the first CFK layer is joined to a second CFK layer (between honeycombs) by a phenol resin, and said second layer is joined to a layer situated therebelow by epoxy resin (Col. 4, Lines 61 – 64). Fischer et al. disclose their invention

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is intended for in the event of a fire and should be able to withstand temperatures of 700 - 800°C, and perhaps higher (Col. 2, Lines 6 – 12). It would have been obvious to one skilled in the art at the time of the invention that adhesive bonds from compounds such as phenol resin or epoxy resin would be non-detachable at high temperatures, as disclosed by Fischer et al.

In regard to claim 43, Fischer et al. disclose a burn-through-proof foil, as discussed for claim 36. Fischer et al. disclose, "The panels are produced in one working operating, and the panels may also be sealed laterally by a flame- and fume-resistant foil, e.g. metallic foil and preferably aluminum foil 5, which joins the two cover layers via the edges" (Col. 4, Lines 17 – 21). Examiner considers "flame- and fume-resistant foil" to be the same as "burn-through-proof foil" which encloses a burn-through-proof insulation (honeycomb panel).

6. Claims 25 – 27 & 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Humphries et al. and Fischer et al. as applied to claim 23 above, and further in view of Heitkamp (EP 0 624 462 A1).

In regard to claims 25, 26, 27, and 42, Humphries et al. disclose at least two honeycomb bodies containing a dampening layer. Fischer et al. disclose CFK cover layers above and below a single honeycomb layer. Heitkamp discloses multiple layers of honeycomb structures (corresponds to Applicants' "plurality of honeycombs arranged side by side" (Figure 1). The construction of an outside or exposed skin 11

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(corresponds to applicant's "top-supported cover layer") and a bottom or backside surface skin 15 is preferred (Pg 4, Line 58 – Pg 5, Line 1). According to Heitkamp, "The composite sandwich panel according to the present invention (Heitkamp's invention) is a structure which can be contoured, and is unique in that the composite design can accommodate most any environmental demand relative to fire containment. Each of the components plays a synergistic part in the overall design and construction" (Pg 7, Lines 33 - 36). It would have been obvious to one skilled in the art at the time of the invention that it is commonly known in the art to stack honeycomb structures to form a multilayered structure, as shown by Heitkamp.

In regard to claims 30, Fischer et al. disclose CFK insulation layers (CFK-Al-CFK cover layers), as noted above for claim 23. The resin-rich, structural fibrous layers are not affected by flames (Col. 3, Lines 52 – 55). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention for the cover layer, which would be in contact with the flames to be the CFK (carbon reinforced fibers) disclosed by Fischer et al.

7. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Humphries et al. and Fischer et al. as applied to claim 31 above, and further in view of Sigrafil® Corp
(http://www.sgicarbon.com/sgl_t/industrial/sigrafil/index.html).

In regard to claim 33, Humphries et al. and Fischer et al. are silent in regard to the CFK barrier layers being a plastic foil. Sigrafil® Corp disclose on their webpage (which is dated back to 2002, see “Wayback Machine” results) plastic carbon reinforced fiber having multiple advantages including good rigidity, corrosion resistance, low thermal expansion, low mass, excellent fatigue resistance, and vibration resistance. It would have been obvious to one skilled in the art at the time of the invention that CFK barrier layers in the form of a plastic foil has multiple advantages, as taught by Sigrafil® Corp.

8. Claims 37 – 38 & 44 - 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Humphries et al. and Fischer et al. as applied to claim 23 above, and further in view of M.C. Brady (U.S. Patent No. 2,581,625).

In regard to claims 37 – 39 and 44 – 46, Humphries et al. and Fischer et al. are silent in regard to the means of mounting the panels in the airplane fuselage. M.C. Brady discloses attachment mechanisms such as rivets 18 (corresponds to Applicant’s “connection element”), washers 18a & 23a (corresponds to Applicant’s “lead through/hole”), nuts 23 (threaded hole), nut plates 24, through-bolts 28 (corresponds to Applicant’s “connection element”) to fasten the insulation panels to the inside stringers of the airplane fuselage (Col. 3, Lines 16 – 17, 41 – 44, 61 – 62 & Fig. 3 - 5). It would have been obvious to one skilled in the art at the time of the invention for threaded drill holes to be created when drilling a screw (a connection element) into the insulation material. Commonly known means of mounting honeycomb paneling to the aircraft

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fuselage has been disclosed by M.C. Brady, and therefore it would be obvious to use these commonly known means for mounting Applicant's panels.

9. Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Humphries et al. and Fischer et al. and M.C. Brady, as applied to claim 23 above, and further in view of F.C. Pipher (US 3,529,032).

In regard to claim 39, M.C. Brady is silent in regard to the type of metallic material used as the rivets for fastening the panel to the inside of the aircraft. Pipher, however, discloses materials such as steel, and especially, titanium are good materials to use as rivets due to their weight saving (high strength-to-weight ratio) and temperature requirements (Col. 1, Lines 45 – 54; Col. 5, Line 73 - Col. 6, Line 3). Titanium is a fireproof material. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use a material, such as titanium, for the rivets to connect the panels to the aircraft structure, due to its favorable properties, such as high-strength-to-weight ratios and temperature requirements, as taught by Pipher.

10. Claims 40 – 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gorges (U.S. Patent No. 4,557,961), in view of in view of Heitkamp.

In regard to claims 40 and 41, Gorges discloses a light-weight, fire-retardant structural panel for aircraft assembly comprising a paper honeycomb core (Col. 6, Lines 12 - 15) with “upper and lower face sheets 15, 16 formed of a fibrous material

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impregnated with a phenolic resin so as to further enhance the fire resistance characteristics of the panel 10. While acceptable result have been attained using fiberglass materials impregnated with phenolic resin, even more satisfactory results have been attained utilizing graphite (carbon) fibers impregnated with phenolic resin (Col. 6, Lines 36 - 43). Gorges is silent in regard to the addition of a top-supported cover layered and a bottom-supported cover layer.

Heitkamp discloses the construction of a panel for an aircraft cabin, comprising an outside or exposed skins 11 & 6, made of inorganic fiber membrane and phenolic prepregs, 7 & 10, (corresponds to Applicant's "top-supported cover layer" and 'bottom-supported cover layer). According to Heitkamp, "The composite sandwich panel according to the present invention (Heitkamp's invention) is a structure which can be contoured, and is unique in that the composite design can accommodate most any environmental demand relative to fire containment. Each of the components plays a synergistic part in the overall design and construction" (Pg 7, Lines 33 - 36). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the panel disclosed by Gorges with the top and bottom-supported cover layers disclosed by Heitkamp, in order to achieve improved fire containment.

In regard to claim 42, as discussed above for Claim 40, Heitkamp discloses the top and bottom supported cover layers comprises glass fiber reinforced layer (Pg 4, Lines 1 - 23).

Response to Amendment

Obvious Type Double Patenting

11. The amendments made to Applications 10/596,982 & 10/596,418 direct the scope of the claimed inventions into different directions from the immediate application and are thus no longer double patenting. Therefore, the obvious-type double-patenting rejections of the previous actions are withdrawn due to amendments made to the related Applications.

Item 4 of Advisory action:

12. Applicant's amendment clarifies the earlier issue of Applicant's limitation "side-by-side honeycombs".

Response to Arguments

13. Applicant argues, "...the entire [FAA Advisory] circular is addressed to a **voluntary compliance not a mandatory one**, and any materials and components may be tested using the method to determine whether such materials and components are 'fireproof' or 'fire resistant' even if such materials are not required to be tested at all" (Remarks, Pg 9).

EXAMINER'S RESPONSE: Applicant's arguments have been fully considered but they are not persuasive. Applicants have provided the FAA advisory circular as

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their support for the definition of "burn-through-proof" and "fire-proof". Therefore, the standards set by the FAA is the standard by which Examiner basis the interpretation of Applicant's claims.

Definition of Burn-Through-Proof (Item 6 of Advisory Action)

14. Applicant argues, "The term 'fire zone' is not defined in the advisory circular previously submitted for reference. In contrast to the assertion in the Advisory Action, the language of claim 23 recites an interior panel...Thus, the claim, itself, places the interior panel within a fire zone.

15. "Furthermore, the Applicant's specification makes it clear that the purpose of the claimed insulation is to protect passengers from a fire engulfing the exterior of the aircraft, putting the interior panel directly in a fire zone of the aircraft" (Remarks, Pg 10).

EXAMINER'S RESPONSE: Applicant's arguments have been fully considered but they are not persuasive. Applicant has used the FAA circular as their support for what is understood to be "fire resistant", which defines "fire resistance" in terms of the "fire zone". Therefore, it would also be reasonable to rely on the FAA standards as a proper reference for determining areas considered to be "fire zones". The FAA clearly indicates areas considered by FAA standards to be "fire zones" (FAR Part 29 Sec. 29.1181). The cabin area (including panels therein) is NOT listed by the FAA as a "fire zone". Thus it is incorrect for Applicant to consider the cabin to be A "fire zone" when the FAA clearly discloses it to not a "fire zone" and the definition of "fire resistant" and "fire zone" is restricted to these "fire zone" areas of the airplane only.

Fischer et al. (Item 7 of Advisory Action)

16. Applicant argues, “Fischer et al. recognizes that other foils might be used other than Aluminum foils, but Fischer et al. teaches the advantages of using Aluminum vis-à-vis steel, i.e. its known lighter weight, for aircraft applications. Thus, the cited reference, itself, suggests that other materials have a weight that is ‘detrimental to the weight of the floor panel.’ No person having ordinary skill in the commercial aircraft industry would substitute a heavy material (e.g. steel) for much lighter one (e.g. aluminum), if the material is known to contribute to a substantial weight gain in a finished aircraft. Thus, the mention that steel might be used in some applications fails to disclose that it would be used in an application requiring light weight, such as in an interior panel of an aircraft passenger cabin. Therefore, Fischer et al. fails to disclose the use of a steel foil in an interior panel of a commercial aircraft passenger cabin” (Remarks, Pg 13).

EXAMINER’S RESPONSE: Applicant’s arguments have been considered but are not persuasive. One of ordinary skill would substitute sheet steel foils for aluminum *because Fischer et al. explicitly teaches the substitution:*

Because of the layer-impregnating materials such as, for example, phenol resin and epoxy resin, plastics material films, ceramic films, ***sheet steel foils, and other could also be used instead of aluminum foils*** (Fischer et al, Col. 3, Lines 56 - 59).

Therefore, Applicant’s argument that no person of ordinary skill in the art would consider making such a substitution, no matter the motivation, is unpersuasive.

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17. Applicant argues, "Furthermore, even if steel foil were selected as a substitute for aluminum foil, there is no disclosure, teaching or suggestion of how thick the foil would be. Presumably, the steel foil would need to be even thinner than the aluminum foil in order to conserve weight. Even at the same thickness as the aluminum foil cannot be presumed to offer burn-through-proof protection at 2000 degrees Fahrenheit for 15 minutes" (Remarks, Pg 13).

EXAMINER'S RESPONSE: Applicant's arguments have been considered but are not persuasive. First, FAA standards do not set thicknesses. Therefore the disclosure of Fischer et al. meets the limitation requirements set forth by Applicant's claims.

Second, in response to Applicant's argument that the references fail to show certain features of Applicant's invention, it is noted that the features upon which Applicant relies (i.e., thickness of burn-through-proof barrier) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Arrangement of Layers (Item 11 of the Advisory Action)

18. Applicant argues, "The 'at least one burn-through-proof barrier layer is adhesively sandwiched between two of the at least two layers of the honeycomb body formation, which is not disclosed in Fischer et al., and the burn-through-proof foil that conforms to the outer surface of the bottom supported cover layer facing the space is not disclosed

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in Fischer et al. Indeed, Fischer et al., fails to disclose any fireproof layers, whatsoever” (Remarks, pg 14).

EXAMINER’S RESPONSE: Applicant's arguments have been considered but are not persuasive. Fischer et al. disclose steel sheets, as discussed above. Therefore, Fischer et al. clearly suggest the use of a burn-through-proof foil. When the panels of Fischer et al. are stacked, as taught by Humphries, the foil is adhesively sandwiched between two layers of honeycomb body formation.

The Office Action

19. Applicant argues, "Essentially, the Office Action is suggestion that it would be obvious to try a combination of the teachings of the various references and the Sigrafil® reference, which is suggested to teach some advantages of a carbon fiber reinforced plastics material. But nothing in this reference or any of the other cited references teaches or suggests use of this material in the way suggested in the Office Action or as recited in the pending claims. The only reason to combine this reference with the other references is hindsight reasoning because an unlimited number of materials could be chosen that would provide the same or better advantages as the material of this reference” (Remarks, Pg 16).

EXAMINER’S RESPONSE: Applicant's arguments have been considered but are not persuasive. Applicant argues, "...nothing in this reference or any of the other cited references teaches or suggests use of this material in the way suggested in the Office Action or as recited in the pending claims.” However, Fischer et al. disclose a panel

containing carbon reinforced fiber for use in aircraft construction. In addition, the Sigrafil® reference also notes the use of plastic carbon reinforced fiber in panels for aircraft construction. Thus it is clear the plastic carbon reinforced fiber disclosed by Sigrafil® is used in the same way as the primary reference (Fischer et al.) it is combined with and in the same way as Applicant's recited claims.

In response to Applicant's argument that the Examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the Applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

In addition, Applicant has failed to demonstrate the "unlimited number of materials" which could have been chosen. Fischer et al. previously disclosed CFK layers. Missing from the Fischer et al. reference was specifically those CFK layers comprising plastic. There are a limited number of materials that a CFK layer can be comprised of: plastic, metal, natural fabric. The prior art does not suggested an unlimited of materials that the CFK layer can be made of. Therefore, Examiner fails to see the unlimited number of materials Applicant refers to that could have been used in the CFK layers.

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20. Applicant argues, "Certainly, claims 40 – 42,...are nonobvious over Fischer et al., take alone or in combination with any of the other references" (Remarks, Pg 17).

EXAMINER'S RESPONSE: Considering Examiner rejected claims 40 – 42 over Gorges (U.S. Patent No. 4,557,961), in view of in view of Heitkamp, as well as Chee et al., in view of Heitkamp, and not over Humphries, in view of Fischer et al., Examiner agrees with Applicant's statement. The rejection of claims 40 – 42 over Gorges, in view of Heitkamp is maintained.

21. Applicant argues, "Now referring to claims 37 - 39 and 44 - 46, the specific arrangement of the threaded drill holes and the hole-like leadthroughs are nonobvious over the cited references, because the M.C. Brady reference fails to teach or suggest a drill hole that does not extend through a burn-through-proof panel and a burn-through-proof connection element, which must include not only a material that doesn't burn, but also one that doesn't conduct heat that would cause ignition of materials in contact with the connection element on the opposite side of the dill hole from the fire" (Remarks, Pg 19).

EXAMINER'S RESPONSE: In regard to claims 37 - 38, 44 – 46, the burn-through-proof panel is disclosed by the combination of Humphries and Fischer et al. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In regard to the burn-through-proof connection element of claim 39, Pipher discloses a fireproof material, such as titanium, should be used for rivets in aircraft structures, as discussed above.

22. Applicant argues, "On page 17, lines 19 – 26, Chee et al. teaches that the panels of type A from Figure 6 '...did not meet even minimal fireproof criteria.' Thus, no person having ordinary skill in the art would implement panels A1 and A2 (of type A) from Figure 6, when Chee et al. teaches that other solutions performed much better. This comparison, in fact, teaches away from the type A panels, and teaches that the type A panels are not fireproof" (Remarks, Pg 20).

EXAMINER'S RESPONSE: Applicant's arguments have been fully considered but they are not persuasive. First, although the embodiments shown in Figure 6 A1 - A2 are the least preferred embodiments of the invention of Chee et al., the embodiment nevertheless meets all the limitations of Applicant's claim.

Second, in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which Applicant relies (i.e., fireproof panels) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

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23. Applicant argues, "Likewise, page 16, liens 1 - 28 teaches away from carbon fibers and the HRH - 10 honeycomb core of Figure 4, panel no. 23. The reference teaches that the epoxy matrix face sheet, such as that of panel no. 23, '...was totally consumed on the hot side in about four minutes, and cold side damage was extensive.' In contrast, the ceramic fiber face sheets with other polymer matrix materials 'degraded or ablated at a much slower rate than the epoxy matrix systems' such as that of panel no. 23...Instead, the Chee et al. reference actually teaches away from the limitations of the pending claims" (Remarks, Pg 20).

EXAMINER'S RESPONSE: Applicant's arguments have been fully considered but they are not persuasive. First, figure 4, panel no. 23 is an embodiment of the invention of Chee et al. Although it is not the most preferred embodiment, Chee et al. do not teach away from it. Chee et al. disclose that the flame did not completely penetrate through any of the panel face sheets (Chee et al., Pg 15, Lines 32 – 35), and thus Chee et al. teach their embodiment of Figure 4 panel no. 23 was fire-proof.

Second, in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which Applicant relies (i.e., fireproof panels) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to NICOLE T. GUGLIOTTA whose telephone number is (571)270-1552. The examiner can normally be reached on M - F 8:30 - 6 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David R. Sample can be reached on 571-272-1376. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/David R. Sample/
Supervisory Patent Examiner, Art Unit 1794

NICOLE T. GUGLIOTTA
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